Distr.:
LIMITED

ST/ECA/IHR/1
1 June 1981

Original: ENGLISH

ECONOMIC COMMISSION FOR AFRICA

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ADDIS ABABA

REPORT OF

THE FIRST INTERGOVERNMENTAL MEETING OF EXPERTS ON THE ESTABLISHMENT OF IRON AND STEEL INDUSTRY IN EASTERN AND SOUTHERN AFRICAN SUBREGION

(Addis Ababa, 25-29 May 1981)

81-1706

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A. ORGANIZATION AND PARTICIPATION

1. The first Intergovernmental Meeting of Experts on the Establishment of Iron and Steel Industry in Eastern and Southern African Subregion was organized by the Economic Commission for Africa at Addis Ababa, Ethiopia, from 25 to 29 May 1981.

Participation

2. Representatives of the following member States participated in the meeting: Ethiopia, Kenya, Lesotho, Malawi, Uganda and Zimbabwe. Consultant: Engineer F. Abouzaghla.

3. The meeting unanimously elected Mr. Charles O. Okui, Uganda, as Chairman and Mr. Thomas S. Mercer, Zimbabwe, as Rapporteur.

B. AGENDA

4. The following provisional agenda was unanimously adopted as amended:

1. Opening of the meeting:

   - Opening statement by the Executive Secretary of ECA

2. Election of officers

3. Adoption of the agenda and organization of work

4. Presentation of country experiences in the development of iron and steel industry in the Lusaka-MULPOC countries

5. Presentation of the Egyptian Experience in the Integrated Development of the Iron and Steel Industry in Egypt (ECA/IMP/I&S/BP.2)

6. Presentation of and discussion on Issues for Discussion (ECA/IMP/I&S/BP.1) and the Preliminary Report on the Development of Iron and Steel Industry and related Metallurgical Facilities (ECA/MULPOC/Lusaka/IV/6):

   Part I: Existing situation
   Part II: Proposals for development of and collaboration in the Iron and Steel Industry

7. Conclusions and recommendations

8. Any other business

9. Second meeting: Agenda, date and venue

10. Adoption of the draft report of the meeting

11. Closing of the meeting

C. ACCOUNT OF PROCEEDINGS

Opening statement

5. The meeting was opened by Mr. G. Kimani, Director of the Joint ECA/UNIDO Industry Division on behalf of the Executive Secretary who was unavoidably absent.

6. In his opening statement, the Director of the Joint ECA/UNIDO Industry Division said that the decision of the fourth meeting of the MULPOC Council of Ministers and the second extraordinary meeting of the Ministers of Trade, Finance and Planning of subregion to convene the intergovernmental meeting of experts was a reflection on the major role played by the iron and steel industry in economic development. Economic development may be measured in terms of the per capita consumption of iron and steel, and the iron and steel industry provides the major inputs for the engineering industry itself, a carrier of technology and a supplier of inputs to agricultural, transport, telecommunications, mining, energy and food processing equipment and machinery, and the spare parts industries.

7. The region is endowed with a wide range of mineral ores currently exploited for exports in the form of raw or concentrated ores and crude metals. In 1977, Africa imported 4.0 million tons of iron and steel valued at US$2.3 billion and exported 9.7 million tons of iron ore and concentrates with iron content equal to the imported iron and steel and valued at US$0.3 billion. The balance of US$2.0 billion which was financed from export earnings from other commodities and external finances borrowed at high interest rate had to be used to pay for the US$2.0 billion imported steel. Although there are internal and external constraints contributing to the failure of the region to develop the iron and steel industries, it was about time the countries of the region came together and approach the issue on a multinational basis.

8. He urged the experts to examine and appraise critically the ECA suggestions concerning the subregional programme of action and collaboration and also evolve their own ideas on the development of the iron and steel industry. He briefly outlined the major issues which are to be considered namely: promoting trade in raw materials, energy, and basic intermediate and final products; formulating collective strategy that would strengthen the negotiating power of member States vis-à-vis a third party; assessing technological manpower, infrastructural and final implementation of iron and steel project policies, strategies and modalities of co-operation. The idea of the multi-national approach is to ensure that the national plants benefit from a subregionally articulated market.

9. He expressed the hope that at the end of the meeting concrete recommendations would be made for submission to the Lusaka MULPOC Council of Ministers, whose decision will have to be implemented by the Experts. The UN system particularly ECA and UNIDO would, on request, and within the limits of their resources, assist and backstop their efforts.

Presentation of country experiences in the development of iron and steel industry in the Lusaka-MULPOC countries (agenda item 4)

10. The Zimbabwe delegate commenced by presenting an information paper on his country by outlining the development of the iron and steel industry and related metallurgical facilities in Zimbabwe. In describing the existing situation, he mentioned RISCO Steel Works in Zimbabwe which currently employs 5,500 employees producing billets, slabs heavy sections, bars, etc. The production capacity of one million tonnes per annum had not been achieved due to breakdowns in the plant and lack of financial resources. The

maximum production achieved had only been a little over 800,000 tonnes to date. Approximately 75 per cent of steel production is exported. The foundry industry is also well established in Zimbabwe. The established foundries cast a wide range of ferrous, non-ferrous and steel articles. A very substantial export trade has also been built by these companies. Other products such as tubes and pipes, screws, bolts and rivets, stainless steel are also manufactured. He concluded by saying that the natural export market for all these products was within the African continent which industrialists were very keen to develop further.

11. Following the presentation of Zimbabwe's country experience, delegates discussed issues raised in the presentation and enquired after the possibility of Zimbabwe exporting these raw materials to other countries of the subregion and also the feasibility of his country importing minerals from the rest of Africa bearing in mind Zimbabwe's endowment with a wide range of minerals. In replying, the delegate of Zimbabwe stated that it will be a better policy to exploit those trade opportunities presented within the rest of Africa provided, of course, his country has established such markets. His country was also faced with certain critical problems, namely lack of financial capacity to finance projects relating to iron and steel such as plate mill and its inability to export more by rail due to the shortage of rail trucks and locomotives. Further, delegates sought information on possible areas of co-operation and enquired whether it was possible to establish an iron and steel plant in a country lacking in all the raw materials. In response, the delegate from Zimbabwe stated that any country wishing to establish an iron and steel industry could start by utilizing raw materials or products available from Zimbabwe, and could also benefit from progress made in Zimbabwe by study visits to the iron and steel sites.

12. The problem of transportation particularly as it relates to iron and steel was also raised. Delegates wanted to know whether the ECA had done any studies relating to this. The secretariat informed the meeting that there was a wide range of studies for the implementation of the Transport and Communications Decade which are currently being reviewed. After consultation with the ECA Transport Division, some guidelines will be submitted to the second intergovernmental meeting of experts.

13. In presenting his country's experience, the delegate of Kenya said that although his country's experience was not as rich as others, his Government had plans to develop an iron and steel industry. In 1976 a sector study on metal and engineering industry was undertaken. The study indicated that Kenya used a lot of flat products. The present consumption of steel is 300,000 tonnes per annum and by 1990 a figure of about 400,000 to 500,000 tonnes per annum of flat products has been projected. Furthermore, a full study way carried out in 1979 which confirmed that an iron and steel industry could be established. This study was basically in two parts. One dealing with market, technology and infrastructure, the other with financial and sensitivity analysis to see whether the project would be viable. The type of technology identified for production of both flat and non-flat products made it imperative that the major raw materials should be readily available. Since Kenya is not favourably endowed with raw materials, the Government plans to import them. He also pointed out that certain downstream industries have been identified, and would be in operation by 1984. The production capacity of the proposed steel plant is 600,000 tonnes during the first phase, i.e. up to 1990. The plant will supply the existing re-rolling mills with their extra requirement for billets. The balance of crude steel will be rolled into slabs for re-rolling into sheets and coils to satisfy the projected demand. In the initial plan, account is not taken of possible exports of flats to the neighbouring states. The possibility of supplying flats and non-flat products to other states in the subregion will be considered in the context of the proposed PTA.

14. Finally, he enumerated major problem areas and emphasized the problems of finance, energy and market which should be carefully considered if the iron and steel project is to be successfully implemented.

15. The delegate from Uganda presented his country's experience and stated that Uganda is endowed with deposits of iron ore, mainly magnetite, in eastern Uganda at Tororo. There are also substantial deposits in the western and southern parts of the country especially Kigezi. These are very high grade hematite ores whose content is about 68 per cent to 70 per cent Fe. Iron and steel has been accorded high priority by the Government. In describing the existing situation, he stated that there is one steel mill at Jinja, utilising scrap which is fastly depleting. In 1973, M.S. Atkins & Partners were commissioned to conduct a study on the development of iron and steel based on the iron ore in Tororo, the prefeasibility study indicated that although there was a large deposit of ore, there were impurities of titanium of about 1.30 per cent.

16. The country has hydro-electric power, limestone and charcoal potential for the establishment of an iron and steel complex. However, there are certain basic infra-structures such as transport system especially in Kigezi which may be regarded as a major constraint to the exploitation of the ore. The problems of finance and market are also to be studied carefully.

17. The Ethiopian delegate in his presentation , pointed out that among the metal working plants in the country the rolling mills which have a capacity of 63,000 tonnes per year is based on domestic scrap and imported billets. The activities of the mills are limited to the production of merchant products, reinforcement bars, nails, wire, etc. However, the capacity of the mills are limited because of lack of basic raw materials, spare parts and skilled manpower both at the managerial and technical levels. He further stated that small-scale industries play an important role in the iron and steel industry. The country has no shortage of electric energy and effort is being made to investigate the availability for raw materials for the industry.

Presentation of the Egyptian experience in the integrated development of the iron and steel industry (agenda item 5)

18. The consultant to the meeting presented a paper (document ECA/INR/I&S/WP.2) which deals specifically with the agenda item. The paper is divided into three parts. The first part deals with the different factors which are to be considered when planning iron and steel industry and collaboration. The first item in this part concerns metallurgy of steel production as a capital-intensive industry which requires some of the highest industrial technology in the world. It can be controlled within the limits of known chemical, physical and metallurgical properties as well as within the limits of process and equipment variability, accuracy of measuring instruments and skills, responsiveness and discipline of the people. The second item concerns forecasting future development which requires detailed product information on various sectors such as construction, machinery, pipes, automobile, etc., and usually in relation to the estimated gross national product. The third item relates to international co-operation which is expected to give better distribution of profit to the developing countries. The fourth item describes the factors which affect collaboration and which stress the importance of geographical distribution of the main resources although other factors such as construction, operation management and organization, finance and market ought to be considered also. In this regard, Japan and Korea are given as examples of countries which have not got the main resources. The other items in this part include the strategies and criteria for access to the iron and steel industry by identifying

favourable conditions such as the size of the population and that of the market. The first part concludes with a recommendation that the field of analysis of the different factors given on the list in the paper should be enlarged.

19. The second part deals with the development of iron and steel industry in Egypt which was carried out in four stages. The first stage was started after the second war by the private sector utilizing available scrap and the hydro-electric energy from Aswan Dam. Three companies were set up for producing reinforcement bars. The second phase started after the 1952 revolution. The Government established the Egyptian Iron and Steel Company in 1954 as the first integrated plant which comprised the iron ore from Aswan mines and have two sintering machines, two blast furnaces and a Thomas shop, blooming mill, heavy and light section mill and plate and sheet mill. The capacity of the plant production was 300,000 tonnes of raw steel. The third phase was the expansion of the plant to raise its production from 300,000 tonnes to 1.5 million tonnes (what is now known as the Helwan steel complex). It was installed through the aid of an agreement between the Soviet Union and the Egyptian Government which required the former to submit a detailed project report and the working drawings for plants and structure of the iron and steel works, coke oven and ore mines. A brief information was given about the different units of the plant and its capacities including the mines, the sintering plant, the blast furnace shop, the steel converters, the continuous casting and the strip mill, medium section mill and cold formed section mill. Also, a special organization was set up to carry out all the studies and negotiations and contracts with the supplier. Another organization was set up specially for the construction and erection until it got to the stage of operation which is carried out by the Iron and Steel Company. A brief description is given on the operation, the problems, difficulties and the experience they gained during this period covering iron ore, coal, energy, equipment, maintenance, manpower and management. Part two ends by making mention of the plan of the fourth phase from 1980-2000 and the investment of US$14 billion needed to raise the production of steel to 15 million tonnes.

20. Part three draws conclusions and makes recommendations which are expected to assist in the development of the iron and steel industry in the Eastern and Southern African subregion.

21. The discussion which followed the introduction of the document centred around the following: procurement, production and transformation of raw materials, mobilization of finance, planning for manpower and management and the critical importance of obtaining correct information since these factors have been identified as major constraints on the development of the iron and steel industry in the Eastern and Southern African subregion.

Presentation of documents ECA/MULPOC/Lusaka/IV/6 - Parts I and II and ECA/INR/ISS/WP.1 (agenda item 6)

22. In introducing the paper on Issues for Discussion, the secretariat reminded the meeting of its mandate which is to prepare a subregional programme for action and collaboration to be submitted to the fifth meeting of the Lusaka-based MULPOC Council of Ministers. Since it is unlikely that the first meeting of experts will fulfil its mandate at one meeting, it is expected that the first meeting will prepare the ground for the second meeting through the exchange of experiences, identification of problems and constraints inhibiting iron and steel development, discussing and reaching broad conclusions on the issues which have been identified in document ECA/INR/ISS/WP.1, discussing and reaching broad conclusions on modalities for co-operation and

collaboration, agreeing on terms of reference for the preparation of country position papers. These papers will be the basis for the second meeting.

23. It was also suggested by the secretariat and agreed by the delegates that the issues outlined in the document ECA/INR/I&S/WP.1 be examined together with the Preliminary Report on the Development of Iron and Steel Industry and Related Metallurgy Facilities (ECA/MULPOC/Lusaka/IV/6) with a view to prepare a subregional programme for action and collaboration.

National markets

24. On the issue of national markets, it was indicated that for direct and indirect steel demand, subregional projections of 3 and 9 million tons have been made for 1990 and the year 2000 respectively - an average of about 170,000 tonnes per country. This tonnage may not justify an integrated and diversified development of the iron and steel industry at national level. Since one of the basic features of the iron and steel industries is economies of scale it will be to the advantage of the various countries to pool both resources and markets at the subregional level. By so doing, each country can therefore establish fabricating facilities to meet part of its own requirement and at the same time, specialize in the production of some final products that may be required by other member States.

25. Delegates agreed with the substance of the issue of national markets, i.e. that in view of the smallness of national markets, the countries of the subregion should consider pooling their resources based on co-operation at subregional level. It was generally felt that ECA secretariat should consolidate its work on the present available information with a view to determining the real pattern and direction of trade within the subregion. Member States should also assist in the exercise by providing details on, among others, the import structure of iron and steel products, the established productive capacity and planned capacities. An inventory of products which are actually produced locally in the subregion should also be taken.

Raw materials and energy

26. On the issue of raw materials and energy, the secretariat pointed out that in the subregion there is a misconception regarding raw materials and energy requirement for iron and steel development, namely that a country must possess all the basic raw materials before embarking on an iron and steel project. The Japanese experience clearly illustrates that a country does not have to possess all the raw materials to be able to produce iron and steel. The arrangement worked out between the Republic of Guinea (the supplier of iron ore), Nigeria and Algeria is another recent example. It is therefore necessary for the countries of the subregion to make arrangements on trade to ensure the supply of raw materials needed in iron and steel production.

27. The meeting agreed that there was a wide scope for co-operation and collaboration in the exchange and use of raw materials and energy. In discussing the rationale and modalities for co-operation in raw material and energy, it was pointed out by a delegate that the proposed infrastructural development of the subregion should be examined to ensure that after the raw materials have been exploited and developed they can be easily transported to neighbouring countries. Another delegate pointed out that, while the co-operation in iron and steel development should start with collaboration in the supply of raw materials, it will be necessary to ensure that the output of any subregional complex are directed towards the satisfaction of the demand for steel in the subregion before any large scale exportation of these products to countries outside the subregion.

28. The ECA consultant, Eng. Abouzaghla, then emphasized the need to have an organ as the central institution for collecting information, to be staffed with experts to plan how co-operation can be achieved at the subregional level not only in the area of raw materials and energy but also in the other areas identified in document ECA/INR/I&S/WP.1.

29. In general, the major areas of collaboration could be in extraction and processing of raw materials since the investment and market sizes are crucial. In the area of iron and steel production it was felt that the immediate area of collaboration could be in the purchase of sponge iron or ingots (crude steel) from primary producers instead of importing the products from outside the subregion.

Procurement of modern technology and plant

30. On the issue of procurement of modern technology and plant, the secretariat pointed out that this is one of the major constraints in the development of iron and steel. Iron and steel industries are highly capital intensive and controlled by a number of transnational corporations which are vertically integrated from raw materials upwards. Almost every country in the subregion lacks the means to increase its bargaining power in securing modern and efficient technology, know-how, machinery, etc. so as to produce competitive products. The secretariat therefore emphasized the need for countries of the subregion to negotiate with suppliers of technology as a group.

31. In the discussion which followed, it was noted that the services of certain regional centres, e.g. the African Regional Centre for Technology in Dakar, the Regional Centre for Engineering Design and Manufacturing in Ibadan, and the proposed African Regional Centre for Consulting Engineering and Management should be fully utilized for the procurement of technology and plant. It was also noted that in the PTA, there are plans to establish a centre for the promotion of industrial development in the subregion which will also be capable of handling certain aspects of the procurement of modern technology and plant.

Skilled manpower

32. The issue of skilled manpower was introduced by the secretariat. The iron and steel industry being a technology-intensive industry requires a high proportion of engineers, chemists and other skilled technical and managerial personnel. A total number of about 78,000 personnel including some 15,000 engineers, other graduates and technicians may be required for the iron and steel industry by the year 2000. In order to be able to produce this number of qualified and skilled personnel the secretariat suggested that member States should individually and as a group formulate manpower policy, strengthen and expand educational and technical institutions, and begin immediately to train a core of people who will be capable of designing, promoting and implementing iron and steel projects.

33. A delegate then asked the secretariat to explain the basis of the manpower projections for iron and steel in the subregion, and the percentage distribution of the various categories of people normally employed in the iron and steel industry. The secretariat indicated that the projections were based on information available in national plans for and studies on iron and steel as reflected in Chapter VI of the basic paper. It was pointed out by Eng. Abouzaghla that the manpower requirement was underestimated. The inclusion of other service functions such as the transport system and operation of mines will increase the manpower requirement considerably. He further stated that, in practice, the number of people to be employed in any iron and steel plant depends on the technology and the organization of work.

34. The secretariat gave a brief description of the status of training facilities in the subregion and at the national level. It was further suggested that a training centre should be part of the investment programme for iron and steel either in the subregion or within the individual countries. Preferably, this Centre should be established during the first phase of the iron and steel project. The system of management should also form an important aspect in the training programme.

35. In view of the shortage of trained engineers and skilled manpower, it was the general understanding that the subregion might have to rely at the initial stage on imported skill. In negotiating for the procurement of technology and plants, training of personnel, in countries supplying technology and plant should form a part of the contract. On-the-job training, i.e. in-plant training can be done at the national level and at existing iron and steel plants in the subregion. Training of the higher cadres can be done at the universities, technical colleges, polytechnics and institutes of technology and where appropriate outside the subregion or the African region.

36. It was agreed that there is a need to formulate manpower policies aiming at reorientating the educational system towards the needs of an industrial society linked to the planned production programme particularly that of the iron and steel industry.

Mobilization of finance

37. In introducing the issue of mobilization of finance, the secretariat pointed out that iron and steel is the most resource/capital intensive industry, the investment of which is characterised by a high cost per unit of output. Since the estimate of national projects ranges from US$430 to 2,760 million it is most likely that member States within the subregion may not be in the position to mobilize such funds or negotiate successfully for the funds from abroad.

38. The meeting agreed that the mobilization of finance is a critical constraint to the development of iron and steel industry and endorsed the secretariats proposal that joint ventures between countries of the subregion should be encouraged so as to increase the bargaining power or position of member States to negotiate the total sum and terms of loans with donor countries or institutions.

Institutional mechanism

39. On the issue of establishing an institutional mechanism for iron and steel development, it was agreed to recommend to the fifth meeting of the MULPOC Council of Ministers that an ad hoc committee follow up and implement the decisions arising from the said meeting.

Possibilities for joint planning and programming

40. This issue was discussed in conjunction with Chapter VI of document ECA/MULPOC/Lusaka/IV/6 which deals with proposed production programmes and areas for collaboration. After a lengthy discussion which identified iron and steel project ideas as well as existing production units the meeting agreed on the following:

(a) that, when necessary, emphasis be made on each country's rehabilitation programme of existing facilities in order to achieve maximum productive capacity, and

(b) that the area of priority for the rehabilitation programme should be clearly identified.

41. In discussing the issue of subregional programme as contained in Chapter VI, part II of document ECA/MULPOC/Lusaka/IV/-, a consensus was reached that additional information was required in order to formulate the programme and identify specific areas of co-operation.

Conclusions and recommendations, other business and second meeting: agenda, date and venue (agenda items 7, 8 and 9)

42. The meeting agreed on broad conclusions in respect of constraints on the development of the iron and steel industry in the subregion. These constraints relate to:

(a) national markets
(b) raw materials and energy
(c) procurement of modern technology and plant
(d) skilled manpower
(e) mobilization of finance
(f) institutional mechanism
(g) joint planning and programming

43. Consequent upon the above, the meeting decided to hold a second meeting, tentatively scheduled for 27 to 31 October 1981 at Salisbury, Zimbabwe, based on a suggestion made by the Kenyan delegation and subject to a formal request to be made by ECA secretariat and acceptance by the Government of Zimbabwe.

44. It was agreed among others that the following activities will be carried out between now and the second meeting:

(a) Each delegation should report the result of this meeting to the appropriate authorities in their own countries;

(b) Each member State should prepare a country position paper to reach ECA secretariat not later than 7 August 1981 and covering the following areas:

(i) raw materials and energy availability,
(ii) current structure of imports of iron and steel products,
(iii) status of the iron and steel industry, including existing capacities and national plans for iron and steel projects,
(iv) information on existing graining institutions and facilities,
(v) areas of co-operation including:

- access to national market
- transport facilities
- possibilities of exchange of products including raw materials (up-dating where necessary the indicative list of commodities relating to iron and steel likely to be traded within PTA);

(c) ECA secretariat and the Bureau of the Meeting should visit those countries not represented at the first meeting in order to appraise them of the outcome of the meeting and provide guidelines as to the preparation of country position papers. The ECA will meet the costs of these visits,i.e. travel and per diem.

(d) The ECA secretariat will up-date the background paper on the basis of the country position papers in time for the second meeting.

45. The meeting agreed on the following provisional agenda for the next meeting:

1. Opening ofmeeting
2. Election of officers
3. Adoption of draft agenda and programme of work
4. Presentation of the report of the first meeting followed by discussions on matters arising for the first meeting
5. Review of National Position Papers
6. Presentation of outstanding issues:
   (a) Transportation problems for iron and steel industry, raw materials and products
   (b) Framework and rationale for co-operation
   (c) Modalities for co-cperation
7. Recommendations to the fifth Meeting of the MULPOC Council of Ministers
   (a) Programme of co-operation in the development of the iron and steel industry in the subregion
   (b) Recommendations on terms of reference, modalities, mandate, and composition of the proposed ad hoc committee on the development of the Iron and Steel Industry in Eastern and Southern African subregion
8. Adoption of the report and closing of the meeting

46. The meeting further agreed that all concerned ECA-sponsored regional institutions mentioned during the course of discussions at the meeting should be invited to attend the second meeting at their own expense.

Adoption of the report and closing of the meeting

47. The draft report of the first Intergovernmental Meeting of Experts on Establishment of Iron and Steel Industry in Eastern and Southern African subregion was adopted with the necessary amendments. Following his closing remarks the Chairman declared the meeting closed at 1.45 p.m. on Friday, 29 May 1981.